COMPLIANCE INFORMATION

UL Listed
C-UL Listed (Canada)
CISPR/EN55022 Class A

FCC Regulations

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

Canadian Regulations

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European Regulations

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Achtung !

Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in weichen Fällen der Benutzer für entsprechende Gegenmaßnahmen werantwortlich ist.

Attention !

Ceci est un produit de Classe A. Dans un environment domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilsateur de prende les measures spécifiques appropriées

CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentlickes Telekommunikationsnetz in den EG-Mitgliedstaaten verstösst gegen die jeweligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

Printed in the U.S.A. 33194.B

TRANSITION networks

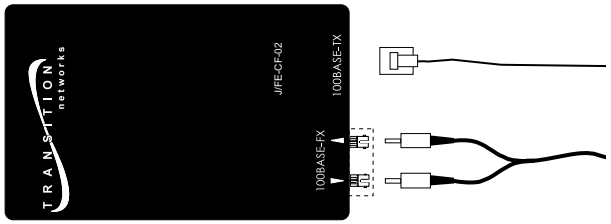
100BASE-TX/100BASE-FX

Media Converters

J/FE-CF-02

USER'S GUIDE

The TRANSITION Networks J/FE-CF-02 series Fast Ethernet™ media converters connect either unshielded or shielded 100BASE-TX twisted-pair copper cable to 100BASE-FX *multimode* OR *singlemode* (depending on model) fiber-optic cable.



J/FE-CF-02

Provides an RJ-45 100BASE-TX twisted pair copper connector and a set of RX (receive) and TX (transmit) 100BASE-FX ***ST*** *connectors to* ***1300 nm multimode*** *fiber-optic cable.*

J/FE-CF-02(SC)

Provides an RJ-45 100BASE-TX twisted pair copper connector and an RX (receive) and TX (transmit) 100BASE-FX ***SC*** *connector to* ***1300 nm multimode*** *fiber-optic cable.*

J/FE-CF-02(SM)

Provides an RJ-45 100BASE-TX twisted pair copper connector and an RX (receive) and TX (transmit) 100BASE-FX ***SC*** *connector to* ***1300 nm singlemode*** *fiber-optic cable.*

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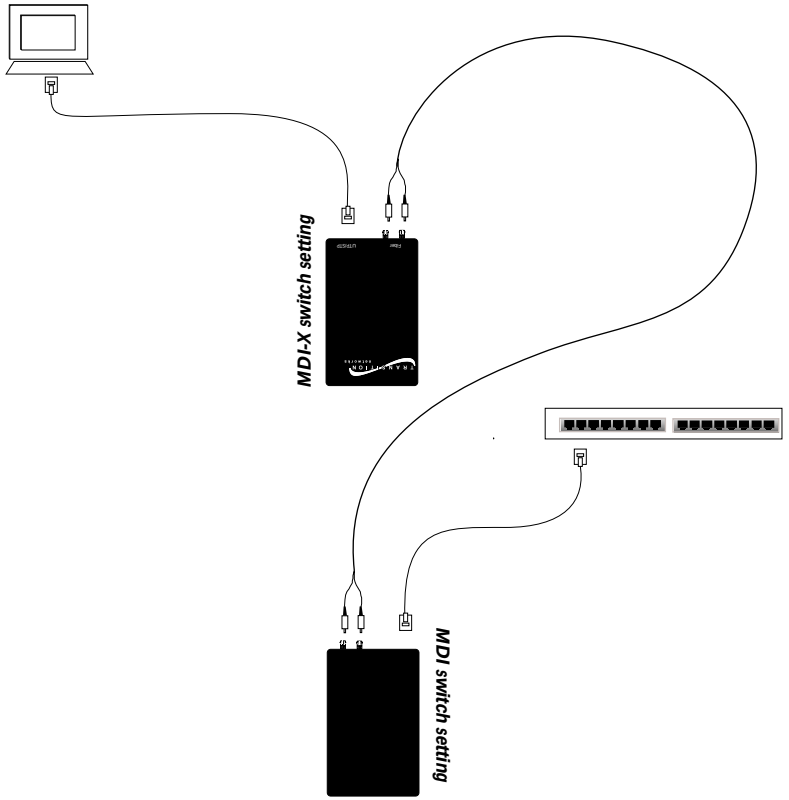
J/FE-CF-02 IN THE NETWORK

Do NOT connect media converters between hubs.

Install no more than two (2) media converters in series.



TECHNICAL SPECIFICATIONS

Standards	IEEE 802.3u	
Case Dimensions	4.0" x 3.75" x 1.0"	(102 mm x 95 mm x 25 mm)
Power	Regulated 12VDC at 800 mA	
Environment	Typical Operating Temperature:	0° to 50°C (32° to 122°F)
	Storage Temperature:	-20° to 85°C (-4° to 185°F)
	Humidity	10-90%, non condensing
	Altitude	0-10,000 feet
Warranty	Lifetime	

TRANSITION networks

DECLARATION OF CONFORMITY

Name of Mfg: **Transition Networks**
6475 City West Parkway, Minneapolis MN 55344 USA

Model: **J/FE-CF-02 Series Media Converters**

Part Number(s): **J/FE-CF-02, J/FE-CF-02(SC), J/FE-CF-02(SM)**

Regulation: **EMC Directive 89/336/EEC**

Purpose: To declare that the ***J/FE-CF-02*** to which this declaration refers is in conformity with the following standards.

EMC-CISPR 22: 1985 Class A; EN 55022: 1988 Class A; EN 50082-1:1992; EN 60950 A4:1997; IEC 801.2, IEC 801.3, and IEC 801.4; IEC 950

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Stephen Anderson, Vice-President of Engineering

October 1, 2000
Date

CABLE SPECIFICATIONS

The physical characteristics of the media cable must meet or exceed IEE 802.3 specifications.

MULTIMODE

Fiber Optic Cable Recommended:	62.5 / 125 µm multimode fiber	
Optional:	100 / 140 µm multimode fiber	
	85 / 125 µm multimode fiber	
	50 / 125 µm multimode fiber	
J/FE-CF-02	1300 nM	
Fiber Optic Transmitter Power:	min: -19.0 dBm	max: -14.0 dBm
Fiber Optic Receiver Sensitivity:	min: -34.0 dBm	max: -14.0 dBm
Link Budget:	15.0 dB	
Typical Maximum Cable Distance*:	2 kilometers	
J/FE-CF-02(SC)	1300 nM	
Fiber Optic Transmitter Power:	min: -19.0 dBm	max: -14.0 dBm
Fiber Optic Receiver Sensitivity:	min: -34.0 dBm	max: -14.0 dBm
Link Budget:	15.0 dB	
Typical Maximum Cable Distance*:	2 kilometers	

SINGLEMODE

Fiber Optic Cable Recommended:	9 µm singlemode fiber	
J/FE-CF-02(SM)	1300 nM	
Fiber-optic Transmitter Power:	min: -15.0 dBm	max: -8.0 dBm
Fiber-optic Receiver Sensitivity:	min: -31.0 dBm	max: -8.0 dBm
Link Budget:	16.0 dB	
Typical Maximum Cable Distance*:	15 kilometers	

*Actual distance dependent upon physical characteristics of network installation.

Copper Cable

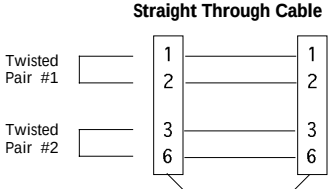
Category 5 shielded twisted-pair (STP) or unshielded twisted-pair (UTP) copper wire is required. DO NOT USE FLAT OR SILVER SATIN WIRE.

CATEGORY 5:

Gauge	24 to 22 AWG
Attenuation	22.0 dB /100m @ 100 MHz
Maximum Cable Distance:	100 meters

The two active pairs in an Ethernet™ network are pins 1 & 2 and pins 3 & 6. Use only dedicated wire pairs (such as blue/white & white/blue, orange/white & white/orange) for the active pins.

Straight Through Cable



Media Converter in Full-Duplex Network

In a full-duplex network, maximum cable lengths are determined by the cables used. See page 10 for cable specifications.

NOTE: The 512-Bit Rule described below does NOT apply in a full-duplex network.

Media Converter in Half-Duplex Network

The 512-Bit Rule applies separately to each collision domain.

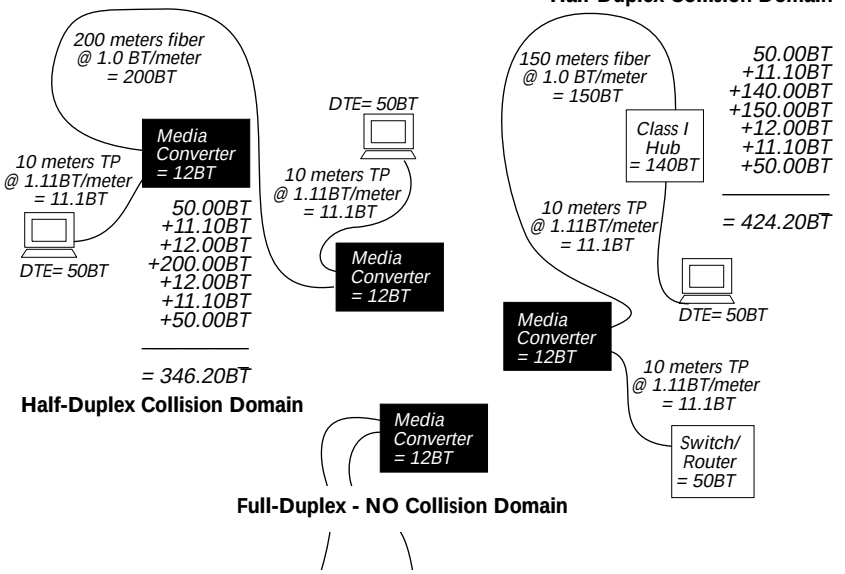
USING THE 512-BIT RULE

In a half-duplex network, maximum cable lengths are determined by the round trip delay limitations of each Fast Ethernet™ collision domain. (Switches and routers divide the network into separate Ethernet™ collision domains.) The 512-Bit Rule determines maximum distances by calculating the collision domain round-trip delay in bit-times.

To calculate a collision domain round-trip delay in bit-times, find the longest path between any two terminal devices in the collision domain. Calculate the round trip delay by multiplying the length of the cable (in meters) by the delay per meter (in bit-times (BT)), then take the sum of all cable delays plus station (DTE), repeater, and multi-port media converter port delays. If the result is less than or equal to 512 bit-times, the path is good.

Class I repeater	140 BT
Class II repeater	92 BT
Class I TX/FX media converter	130 BT
Class II TX/FX media converter	92 BT
DTE (PC, switch, router)	50 BT
J/FE-CF-02	**12 BT**
1 meter CAT.5 TP cable	1.11 BT
1 meter fiber cable	1 BT
Fast Ethernet switch	50 BT

Half-Duplex Collision Domain



INSTALLATION

Set MDI/MDI-X Pushbutton Switch

NOTE: The MDI/MDI-X pushbutton switch is located on the media converter between the copper and fiber network connectors.

- Set the MDI/MDI-X switch to MDI (DOWN) for copper cable connection between hub and media converter.
- Set the MDI/MDI-X switch to MDI-X (UP) for copper cable connection between media converter and terminal, transceiver or network interface card (NIC).

Install Cable

NOTE: See page 6 for cable specifications and configurations.

COPPER

NOTE: KEEP TWISTED PAIR RUNS AS SHORT AS POSSIBLE.

NOTE: AutoCross™ allows the use of either straight-through or crossover configuration cables.

- Locate or build 100BASE-TX compliant cables (either straight-through or crossover) with male RJ-45 plug connectors at both ends.
- Connect male RJ-45 plug connector at one end of cable to media converter RJ-45 jack connector.
- Connect male RJ-45 plug connector at other end of cable to 100BASE-TX terminal device RJ-45 jack connector.

FIBER

- Locate or build 100BASE-FX compliant fiber cable with male two-stranded TX to RX connectors at both ends.
- Connect male TX and RX cable connectors at one end of cable to TX and RX female connectors, respectively, on media converter.
- Connect male TX and RX cable connectors at other end of cable to RX and TX connectors of 802.3 compliant fiber device.

Connect to Power

- Install Power Adapter cord at back of Media Converter.
- Connect Power Adapter plug to AC power.
- Verify that Media Converter is powered by observing illuminated LED(s).

OERATION

Use the status LEDs next to each connector to monitor media converter operation in the network.

POWER	Steady LED indicates power.
UTP	Steady LED indicates 100BASE-TX link.
	Flashing LED indicates 100BASE-TX activity.
FX	Steady LED indicates 100BASE-FX link.
	Flashing LED indicates 100BASE-FX activity.

FAULT ISOLATION and CORRECTION

If the media converter fails, isolate and correct the failure by determining the answers to the following questions and then taking the indicated action:

1. Is the *Power* LED on the media converter illuminated?

NO

- Is the power adapter the proper type of voltage and cycle frequency for AC outlet?
  NOTE: Refer to the “Power Supply Requirements” on page 7.
- Is the power adapter properly installed in the media converter and in the outlet?
- Contact Technical Support at (800) 260-1312/ (800) LAN-WANS.

YES

- Proceed to step 2.

2. Is the *UTP* LED illuminated?

NO

- Check UTP cables for proper connection.
- Verify MDI/MDI-X switch position.
- Contact Technical Support at (800) 260-1312/ (800) LAN-WANS.

YES

- Proceed to step 3.

3. Is the *FX* LED illuminated?

NO

- Check fiber cables for proper connection.
- Verify that TX and RX cables on media converter are connected to RX and TX ports, respectively, on the other 100BASE-FX device.
- Refer to Tech Tips available at: http://www.transition.com
- Contact Technical Support at (800) 260-1312/ (800) LAN-WANS.

YES

- Contact Technical Support at (800) 260-1312/ (800) LAN-WANS.